

### Virtual Monarch and Meadow Month Lesson: Eastern Black Swallowtail Butterflies

In this lesson, participants will be able to identify black swallowtails and determine some of the differences and similarities compared to monarchs.

At Duke Farms, Monarch and Meadow Month is so much more than just monarchs! There are many New Jersey butterflies that utilize the beautiful meadows found on our property and across our biodiverse state. (Here is a [list of NJ butterflies.](#)) Eastern black swallowtails (*Papilio polyxenes*) are another species, like the monarchs, that are a fan favorite - so much so that they are New Jersey's state butterfly! Swallowtails are abundant in New Jersey, but they differ from monarchs in several ways. Many butterflies have distinct patterns, colors, and shaped wings, but additionally have different behaviors, life cycles, host/nectar plants, and migratory patterns.

Observe the two photos below, monarch (male, left) and eastern black swallowtail (male, right), Can you spot similarities and differences between the 2 species?



Similarities:

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Differences:

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### Life Cycle

Like the monarch, eastern black swallowtails have 4 overall life cycle stages. They journey through life as an egg, a caterpillar (with 5 instars), a chrysalis, and an adult butterfly (learn more about the monarch's life cycle [here](#)). Where their life cycle can get interesting is at the pupal stage when it has formed its chrysalis. Based on what time of the year the caterpillar pupates, there is a chance that the chrysalis will *overwinter*. That means the chrysalis will not hatch the same year it was made. It can survive the cold and snowy winter months into next spring until it is warm enough for it to emerge. They accomplish overwintering by going through a process called *diapause*. Diapause is a form of hibernation where development is delayed; the insect can lower the freezing point of the liquids in its body by producing a natural antifreeze which is what makes this process possible.



### Host and Nectar Plants

The eastern black swallowtail has many host plants. Just like how monarchs use all different kinds of milkweed as host plants (learn more about the host and nectar plants [here](#)), black swallowtails use plants in the carrot family. They can lay their eggs on carrot tops, parsley, Queen Anne's lace, dill, and fennel. The black swallowtail nectar plants include zinnia, purple coneflower, bee balm, Joe-pye weed, butterfly weed, and sunflowers.



### Migration

Unlike monarch butterflies, black swallowtails only have 2 generations a year. Swallowtails also don't migrate to warmer weather in the fall, instead some of the second-generation butterflies will overwinter in their chrysalis (learn more about monarch generations and migrations [here](#)).

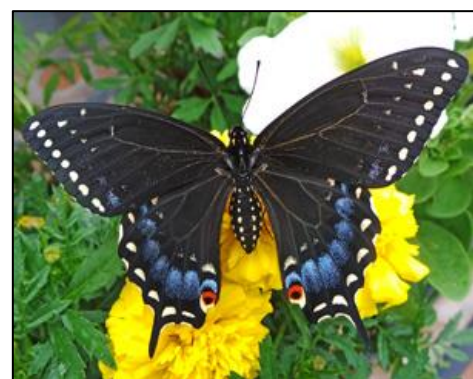
### Male vs. Female

You can observe the differences between male and female black swallowtails by the photos to the right. Males have more yellow on their wings while females have more blue on their wings. Females are also slightly larger than males.

Male



Female



Next time you go for a walk, be on the lookout for eastern black swallowtails and try to identify whether they are male or female. For now, watch [this video](#) of a caterpillar forming its chrysalis and emerging as a beautiful butterfly. Can you tell whether the butterfly is male or female?

**Additional Resources:** [University of Florida Black Swallowtails](#); [NHPBS](#)